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520.43551X00

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: WAKUDA et al  
Serial No.: 10/786,012  
Filed: February 26, 2004  
For: Superconductivity Magnet Apparatus  
Art Unit: 2832  
Examiner: L. Donovan

**RESPONSE**

Mail Stop: Response (No Fee)  
Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

October 17, 2005

Sir:

The following remarks are respectfully submitted in connection with the above-identified application in response to the office action dated July 20, 2005.

The indication that the restriction requirement is withdrawn is acknowledged.

As to the rejection of claims 1 - 19 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 - 10 of US Patent No. 6,859,036 in view of Morita et al [US2005/0083059] as recognized by the Examiner, such rejection can be overcome by the submission of a terminal disclaimer. However, applicants submit that the rejection as set forth is improper, such that the rejection is traversed, and reconsideration and withdrawal of the rejection are respectfully requested.

The Examiner contends that US Patent No. 6,859,036 disclose everything claimed except the support structure and/or bobbin being formed of a material having a magnetic permeability in the range of 1.000 to 1.002. The Examiner

contends that "Morita discloses a support structure (bobbin) having a relative magnetic permeability of a value close to 1.000 [paragraph 47]", (emphasis added), and it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a material having a magnetic permeability close to 1.000 for the support structure and/or bobbin of 6,859,036, as suggested by Morita et al in order to ensure a homogeneous magnetic field. Applicants submit that the Examiner has engaged in a hindsight analysis utilizing the principal of obvious to try and what the applicant has taught against the teacher in order to formulate such rejection and this position is improper. Moreover, applicants submit that Morita fails to overcome the deficiencies of 6,859,036.

Applicants submit that the requirements to support an obviousness-type double patenting rejection are the same as the requirements to support a rejection under 35 USC 103, and reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

In accordance with the present invention, as illustrated in Fig. 1 of the drawings of this application and as more clearly illustrated in Figures 2 and 3, superconductivity coil blocks 4 and 5 in which the block 4 is made up of a plurality of bobbins 3 and the block 5 is made up of bobbins 12, as more clearly illustrated in Figs. 2 and 3 of the drawings, are disposed so as to face each other through a gap in the axial direction of the magnetic field generated by the coils, which gap is referred to as a split gap, and in which a support structure body 13, made of a material having a relative magnetic permeability in the range of 1.000 to 1.002, is provided at the split gap to support an electromagnetic force working between the superconductivity blocks. In accordance with the present invention, even when a strong electromagnetic force works between the two facing superconductivity coil

blocks 4 and 5 in a direction which would tend to shrink the gap between them, the support structure body 13 provides such support with respect to the electromagnetic force so as to maintain the coil blocks in a condition of stability. As further described in connection with Fig. 1, a measurement space 1 is provided in the region of the split gap and into which a probe can be inserted.

Turning to US Patent No. 6,859,036, while this patent claims a split-type multi-layer cylindrical superconducting coil system including a gap, applicants submit that this patent provides no disclosure of "a support structure body provided at said gap to support an electromagnetic force working between said superconductivity blocks, and made of a material having a relative magnetic permeability in the range of 1.000 to 1.002", (emphasis added) as recited in claim 1, for example, and represented by the support structure body 13 in Figs. 2 and 3 of the drawings of this application. That is, in US Patent 6,859,036, between two superconductivity coil blocks, as shown in Fig. 1 thereof, there is only provided a split gap of 100 mm, as described in column 5, line 64. As described, a first room-temperature space 4 is formed penetrating through the cryostat 3 along the center axis of the split-type multi-layer cylindrical superconducting coil system 1 which is secured by welding to the cryostat 3 and a second room temperature space 5 is arranged nearly at the center of the cryostat in the direction of the length so as to be vertically oriented up and down as described in column 6, lines 1 - 19. Furthermore, as described in column 6, lines 20 - 30, the first room-temperature space 4 and the second room temperature space 5 intersect at a central position where a to-be-measured sample 11 and an NMR probe 12 are inserted. Thus, as recognized by the Examiner, the patent 6,859,036 does not disclose a support structure body provided at the gap and being formed of the material, as recited in claim 1.

In this regard, while the Examiner refers to a bobbin being formed of a material having a magnetic permeability in the range of 1.000 to 1.002, the claimed features of claim 1 do not recite such feature of the bobbin around which a coil is wound, but rather a support structure body provided at the gap which is between the superconductivity blocks.

The Examiner refers to Morita et al contending that "Morita discloses a support structure (bobbin) having a relative magnetic permeability of a value close to 1.000 [paragraph 47]" and contends that it would have been obvious to provide such structure in US Patent No. 6,859,036. Applicants note that Morita et al is directed to a NMR probe in which a bobbin 301 has a coil 302 wound an outer periphery thereof. At the outset, irrespective of the material of the bobbin 301, the bobbin 301 forms a part of the NMR probe, and allows a sample tube containing therein a sample to be inserted therein. Referring to US Patent No. 6,859,036, thus, the NMR probe of Morita is representative of the sample 11 and NMR probe 12, as shown in Fig. 1 of US Patent No. 6,859,036, and does not represent a support structure body for the split-type electromagnet, as disclosed and claimed herein, or disclosed in US Patent No. 6,859,036. In fact, Morita provides no disclosure or teaching of a split-type electromagnet having the claimed structural features. Additionally, while Morita discloses that the material of the bobbin 301 is made of a material having a relative permeability of a value close to 1, there is no indication whether such permeability is close to 1 on the lower side of 1 or whether such provides a disclosure of the range of 1.000 to 1.002, as recited in the claims of this application, irrespective of the fact that Morita et al does not provide a disclosure or teaching of a support structure body provided in the gap of the split-type electromagnet. Thus, applicants submit that the

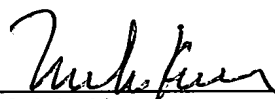
suggested combination is improper and fails to provide the claimed features as set forth in the independent and dependent claims of this application

For the foregoing reasons, applicants request withdrawal of the obviousness-type double patenting rejection as set forth, and applicants submit that all claims present in this application should be considered to be in condition for allowance. Accordingly, issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 520.43551X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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